

METHOD AND APPARATUS TO REDUCE FLUE GAS NOX BY
INJECTION OF N-AGENT DROPLETS AND GAS IN OVERFIRE
AIR

ABSTRACT OF THE DISCLOSURE

A method of decreasing the concentration of nitrogen oxides in a combustion flue gas is disclosed in which the nitrogen reducing agent, either in gaseous form, as small particles, or as small droplets of an aqueous solution, is introduced together with the overfire air in such a way that it mixes with the products of primary combustion along with the overfire air. The nitrogen agent reduced NO_x as it passes through the temperature regime that is optimum for the NO_x reduction as overfire air and flue gas mix. The transition from low to high temperature effectively eliminates ammonia slip. Additionally, the nitrogen agent may be mixed with the overfire air stream in such a manner that it is optimally shielded from early mixing with the products of primary combustion, where a portion of the overfire air reacts initially with any residual carbon monoxide (CO) that would otherwise interfere with the NO_x reduction chemistry.